

Fig. 1.

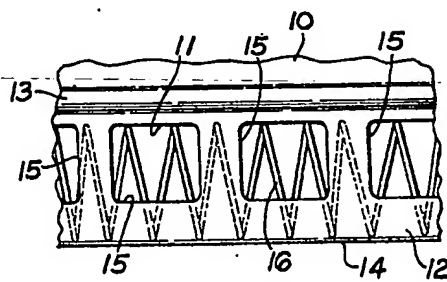


Fig. 2.

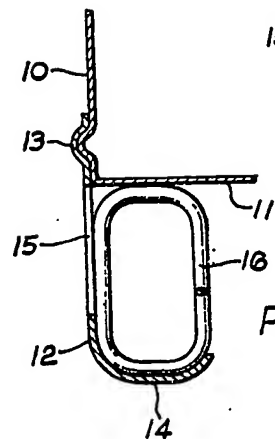


Fig. 3.

- (21) Application No. 23546/72 (22) Filed 18 May 1972  
 (23) Complete Specification filed 25 April 1973  
 (44) Complete Specification published 30 April 1975  
 (51) INT CL<sup>2</sup> A47J 27/21  
 (52) Index at acceptance  
 A4A 1B4B 1B5 1C2 2A 6K 6MX  
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(54) IMPROVEMENTS RELATING TO KETTLES AND  
THE LIKE

(71) We, LEE & WILKES LIMITED of Priory Copper Works Brewery Street, Birmingham, B6 4JD, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to kettles or other cooking utensils for example saucepans for use on gas fired stoves and for brevity the term "kettle or the like" is used hereinafter to include all such utensils.

More specifically the invention relates to bases for kettles or the like, of the kind known as quick-boiling bases, that is bases comprising the bottom wall of the kettle body itself and a downward extending peripheral skirt provided with a plurality of apertures there around. Usually said bases further include a toroidal coiled wire heat transfer element extending around the interior of the skirt in abutment therewith and with a peripheral area of said bottom wall.

The known types of quick-boiling base have proved effective and safe for use on stoves burning "town" gas e.g. coal gas, but the increasing use of natural gas with its markedly different combustion characteristics has given rise to problems as the quick burning base substantially encloses and shrouds the flame, with the danger of cutting off air flow thereto and so causing inefficient combustion which, in the case of natural gas, may result in the flame being extinguished or harmful fumes being given off. This has led some supply authorities to make recommendations against the sale or use of kettles or the like with quick-boiling bases of known types.

The object of the invention is the provision of kettles or the like having quick-boiling bases which are safe and efficient in use in stoves burning gas fuels of all types including natural gas.

According to the invention a kettle or the like includes a body having a circular bottom

wall, a peripheral skirt extending downwardly from said wall, the vertical depth of said skirt being not more than  $1\frac{1}{4}$ " or less than  $\frac{7}{8}$ " from said wall, and said skirt defining a series of apertures whose total area is not more than 55% or less than 40% of the total vertical area of the skirt below the bottom wall; and a generally toroidal coiled wire heat transfer element located within the skirt in abutment with a cylindrical inner face of the latter, the minimum inside diameter of said element being not more than  $6\frac{5}{8}$ " or less than  $6\frac{1}{4}$ ".

Preferably each of the apertures is substantially rectangular with its width exceeding the height, and the apertures are spaced apart around the skirt by distances less than their width.

A preferred embodiment of the invention is now more particularly described with reference to the accompanying drawings wherein:—

Figure 1 is a perspective view of a kettle, Figure 2 is an elevation of a part of a skirt of the kettle, and

Figure 3 is a partial section of the bases of the kettle.

Referring to the drawings a cooking utensil, in this case, a kettle for boiling water on a gas stove has a sheet-metal body 10 with a circular bottom wall 11 (Figure 3)  $7\frac{1}{2}$ " in diameter. A metal skirt 12 is spun onto the body by engagement with a radially protruding ridge 13 on a lower part of the side walls of body 10 so that the skirt 12 extends downwardly from the periphery of bottom wall 11 to a total vertical depth of  $1\frac{1}{8}$ ". The lower edge of skirt 12 is curved inwardly and slightly upwardly to form an interior upwardly concave annular flange 14, the diameter of the radially inner edge of which is  $6\frac{7}{16}$ ".

The cylindrical part of skirt 12 is provided with a series of twenty substantially rectangular apertures 15 each  $1\frac{1}{16}$ " in height and  $1\frac{3}{16}$ " in width regularly spaced

3/8" apart around skirt 12 and 1/8" below the body bottom wall 11.

5 Located within skirt 12 by means of flange 13 is a heat transfer element 16 formed from wire in the manner of a helical spring of generally toroidal shape so that it surrounds a central zone of the bottom wall 11 of the body 10 with which it closely abuts. The coil of element 16 is flattened to abut the cylindrical inner face of skirt 12 closely and lie outside a cylindrical envelope within and coaxial to said skirt, the minimum inside diameter of element 16 being 6 7/16".

15 Tests of the above described embodiment have shown that it is safe and effective for use on domestic cooking stoves burning natural gas.

20 While the above dimensions are preferred it is to be understood that a kettle or the like in accordance with the invention must have a skirt whose vertical depth is not more than 1 1/4" or less than 7/8", the total area of the apertures therein being not more than 55% or less than 40% of the total vertical area of the skirt below the bottom wall, and the minimum inside diameter of the heat transfer element being not more than 6 5/8" or less than 6 1/4".

#### WHAT WE CLAIM IS:—

30 1. A kettle or the like including a body having a circular bottom wall, a peripheral skirt extending downwardly from said bottom wall, the vertical depth of said skirt being not more than 1 1/4" or less than 7/8" from said wall and said skirt defining a series of apertures whose total area is not more than 55% or less than 40% of the total vertical area of the skirt below the bottom wall; and a generally toroidal coiled wire heat transfer element located within the skirt in abutment with a cylindrical inner face of the

latter, the minimum inside diameter of said element being not more than 6 5/8" or less than 6 1/4".

2. A kettle or the like according to Claim 1 wherein each said aperture is substantially rectangular. 45

3. A kettle or the like according to Claim 2 wherein the width of each aperture exceeds the height. 50

4. A kettle of the like according to Claim 3, wherein each aperture is 13/16" in width and 11/16" in height.

5. A kettle or the like according to Claim 2, 3 or 4 wherein the apertures are spaced apart around the skirt by distances less than their width. 55

6. A kettle of the like according to Claim 5 wherein the apertures are spaced 3/8" apart. 60

7. A kettle or the like according to any one of the preceding claims wherein the lower edge of the skirt is curved inwardly to form an annular flange for location of the heat transfer element. 65

8. A kettle or the like according to Claim 7 wherein said flange is curved inwardly and upwardly so that it is upwardly concave.

9. A kettle or the like according to any one of the preceding claims wherein the coil of the element is flattened to abut the cylindrical inner face of the skirt. 70

10. A kettle substantially as hereinbefore described with reference to and as shown in the accompanying drawing. 75

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Printed for Her Majesty's Stationery Office, by the Courier Press, Leamington Spa, 1975.  
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.